

THE RESOURCES AGENCY OF CALIFORNIA
DEPARTMENT OF FISH AND GAME
MARINE RESOURCES OPERATIONS

REPORT FOR THE MONTH OF SEPTEMBER 1962

HIGHLIGHTS

The quota of 1,500,000 pounds of shrimp for Area A (Crescent City-Eureka) was attained. Representatives of this fishing industry were notified of the area closure effective October 3, 1962.

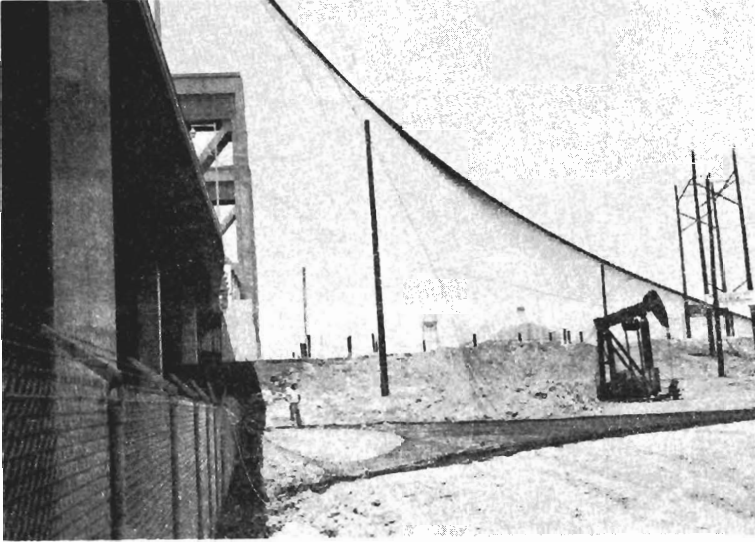
To date the season's sardine catch totaled only 695 tons, as price negotiations curtailed fishing for the entire month. Without considering the strike, the Department predicted only between 5,000 and 15,000 tons for the season.

On its shakedown cruise, a new pelagic fish mid-depth trawl was successful in capturing several samples of fast moving bonito, and made one haul of about 3 tons of anchovies.

House of Representatives Bill 3788, to transfer the vessel **ALASKA** to the State of California for the use and benefit of the Department of Fish and Game, was signed by the President on August 9, and became Public Law 87-576.

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PHOTO HIGHLIGHTS FOR SEPTEMBER 1962



The mouth of the new pelagic fish mid-depth trawl is so large it dwarfs Ken Mais, Marine Biologist (6 ft. T.L.).



Shrimp picking at San Francisco. These shrimp were landed at Eureka and trucked south for processing.



European flat oysters



Giant Pacific oysters

Marine Resources Operations biologists conduct mortality and growth studies of introduced oysters to determine the species most suitable for culture methods in California.

92nd Annual Meeting of
The American Fisheries Society
September 10-12, 1962

Fisheries biologists from all over the United States and several European countries met at Jackson Lake Lodge in Wyoming. Marine fisheries problems received much more emphasis than at past meetings.

Marine fisheries papers in order of presentation were: "The Effects of Artificial Habitat on the Marine Environment", John G. Carlisle, Jr., California Fish and Game; "Empirical Approaches To Forecasting Availability of The Temperate Tunas of the Northeastern Pacific Ocean", James H. Johnson, U.S. Bureau of Commercial Fisheries, San Diego; "Recruitment in the Maine Sardine Industry", Bernard E. Skud, U.S. Bureau of Commercial Fisheries, Booth Bay Harbor, Maine; "Serologically Differentiated Subpopulations of the Pacific Sardine", Andrew M. Vrooman, U.S. Bureau of Commercial Fisheries, La Jolla, California; "Occurrence of Crab Larvae, genus Callinectes, Along the South Atlantic Coast of the U.S.", Paul R. Nichols, U.S. Bureau of Commercial Fisheries, Beaufort, North Carolina; "The Role of Artificial Propagation Facilities in the Management of Anadromous Fish Resources", Edward M. Mains, Washington State Department of Fisheries, Seattle, Washington; "Behavior and Phototaxis of Emerging Sockeye Salmon Fry", William R. Heard, U.S. Bureau of Commercial Fisheries, Auke Bay, Alaska.

One afternoon was devoted to a symposium on European fishery management with speakers brought over from Denmark, Sweden, Israel and France by the Sport-fishing Institute. The speaker from France presented a paper of special interest to marine biologists on the Neurophysiology of Electric Fishing.

Justin W. Leonard from Michigan, the keynote speaker, speaking of Fisheries For The Future, also spoke of electro-fishing which may be developed to the point where it will be of general commercial value resulting in less fishing effort, less wastage of undersized fish on unwanted species.

The meeting as a whole was outstanding and held in country of superb beauty. Facilities at Jackson Lake Lodge were ideal and the hospitality of the Wyoming hosts set a very high standard.

Dick Croker, as outgoing President of the Society, gave up the gavel to Edward Schneberger with a sigh of relief. -- John G. Carlisle, Jr., Marine Biologist III.

1. BOTTOMFISH

- A. Flatfish: September was an average month with no outstanding catches reported. Landings of English sole were good from northern waters. The 20,000 pound limit on Dover sole landings imposed by the markets last month is still in effect. Fishermen had no difficulty in obtaining this limit.

Preparations were made for the October Pacific Marine Fisheries Commission meeting in Seattle, Washington.

- B. Rockfish: Rockfish landings were poor at Eureka, fair at San Francisco, poor at Monterey, and good at Morro Bay.

One Monterey processor is entering the animal food business. Rockfish will probably be a considerable part of the landings. Santa Barbara animal food landings have shown a big increase this month; hake made up a big part of these landings.

A two vessel, longline fishery for sablefish was resumed at Fort Bragg.

2. SHELLFISH

- A. Abalone: The second cruise of the annual abalone survey around the Channel Islands was made from September 5-17. All the Channel Islands were visited, and exploratory dives were made at previously established stations. Samples were taken and several hundred were tagged for growth studies. Generally, growth appeared to be less than that of last year although still above previous years. The kelps have continued to return and in most areas are considerably thicker than last year. Many schools of young fish (blacksmith, kelp bass, senorita) were noticed.

- B. Crab: Growth sampling continued aboard the M.V. NAUTILUS. Excellent samples of the 1961 year class were obtained. They have now been followed through the 12th instar and have obtained a maximum size of approximately 135 mm. The 1962 year-class appears weak in comparison to the 1961 class.

Preparations are being made for the pre-season survey aboard the M.V. NAUTILUS. This survey will be conducted in the San Francisco area from October 15th to November 9th.

- C. Oysters and Clams: Oyster production started to climb again from the lower summer level. The demand is good and oysters appear to be in good condition in all California oystering areas.

Dr. Kenneth Chew of the University of Washington was taken on a tour of Morro and Humboldt Bay oyster beds by Dahlstrom and Jow. Dr. Chew plans to set up stations in these beds to study copepod infestation of oysters and other shellfish. Other stations will be located in Washington and Oregon.

An air-freight shipment of 677 European oysters was received by the Shellfish Investigation on September 5. These 1961 year class oysters were sent by Dr. Loosanoff of the Fish and Wildlife Laboratory, Milford, Conn. The oysters arrived in good condition, and have been suspended in the trays at Tomales Bay. Only one oyster has died so far. At a later date some will be transferred to Drakes Bay.

- D. Shrimp: Statewide landings as of September 28, were approximately 1,718,000 pounds with 1,473,000 landed in Area A (Eureka and Crescent City). Considering the present catch rate, and the ensuing rough weather, it was estimated that the quota of 1,500,000 for Area A would be realized by October 3, necessitating an area closure at that date.

Area A boats fished from St. George Reef to Patrick Point, making most catches in 60-80 fathoms. Catch rates ran around 400 pounds per hour with a high of 748 during the week of September 9-15. Vessels of the Eureka fleet were making two day trips and were limited to 7,000 pounds per trip by the plants, while Crescent City boats have had a 4,000 pound limit for one day trips.

Samples from Area A show that nearly all shrimp were developing head roe at the end of September. Counts per pound ranged from 84 to 124.

Brookings landing receipts show that from April to September 20, 1,145,462 pounds of shrimp and 57,545 pounds of fish have been landed by shrimp boats at this port. Nearly all of this catch was made in Area A off the California coast. During September, ten shrimp boats from California ports fished in Area while seven made deliveries at Brookings, Oregon. There was no fishing activity in other California areas during the month.

3. PELAGIC FISH

- A. Sardines: The central California fleet netted less than 100 tons bringing the season's statewide catch to 695 tons. Southern California purse seiners have been tied up pending a price settlement since the beginning of the southern season, September 1.
- B. Mackerel: Only 12 tons of jack mackerel and 76 tons of Pacific mackerel were received by cannery in the San Pedro-Long Beach Harbor area. These small landings were trucked in from Newport and Port Hueneme. The local fleet has been inactive due to price disputes.

At Monterey, approximately 182 tons of jack mackerel were processed. About one-half the deliveries were netted off Morro Bay and trucked to Monterey.

- C. Anchovies: There were no cannery landings in southern California. Central California cannery received 36 tons. These were caught in Monterey Bay during the first September dark.

Southern California live bait haulers found anchovies fairly plentiful, however, in Los Angeles Harbor they were plagued with "pinhead" anchovies.

- D. Aerial Survey: The area between the U.S.-Mexican Border and Point Conception was surveyed on September 10 and 12. Only anchovy schools were sighted. Twenty-one were observed off Point Loma and 30 between Goleta Point and Pitas Point. Poor weather conditions prevented scouting north of Point Conception.
- E. Sea Survey: The ALASKA returned to port September 7, from a 17 day gear development cruise. The objective was to evaluate a midwater trawl for sampling the pelagic environment.

A total of 39 mid-depth tows were made under a variety of conditions. The net showed considerable promise as a sampling tool. It sampled fast moving bonito in 10 tows, ranging from 2 to 118 fish per tow; it captured a large sample of a dense concentration of anchovies (about three tons in one tow); and it captured consistent samples of juvenile jack mackerel (in 17 tows).

On September 17, the ALASKA departed for Baja California waters to assess the distribution and abundance of pelagic fish species with emphasis on young sardines. Field tests of the midwater trawl are also being continued.

4. TUNA

- A. Albacore: Weather became the governing factor for the albacore fishery during September. Brief periods of moderate weather resulted in better than average catches for this time of year. Even avid sportfishermen had a brief flurry of good fishing between storms early in the month, which helped swell the catch toward last year's near record. Continued rough seas and a low price, presently \$310 per ton, started fishermen on their usual fall trend away from the albacore fishery. Though the fishery continued actively all along the California coast, many boats returning to port the last few days reported that this was their last trip for the season.

Preliminary estimates indicate this season's landings will be at least 10 to 15 percent above those for last year.

- B. Bluefin: A total of 44 bluefin tags have been returned from the 960 released during last month's successful trip aboard the seiner WESTPOINT. Most tagged fish were recaptured soon after release and in the same vicinity. One however, was tagged northeast of Guadalupe Island and recovered 140 miles farther northward, near San Clemente Island, 26 days later.

Bluefin fishing was curtailed most of the month by a price dispute between boat owners and processors. As a result, most purse seiner unloadings have been delayed four to six weeks. Though the dispute was settled several days ago, 30 to 40 boats are awaiting the opportunity to sell their load of tuna.

5. SPORTFISH

- A. Partyboat: Contacts with landing and boat operators were made from Morro Bay to San Francisco Bay during early September. According to boat operators and wardens, unusually high salmon catches have been made, mostly of fish shorter than 22 inches. Some objected to the one undersize salmon regulation.

The SUM FUN, San Clemente, reported boating nine 30 pound sunfish (Mola) on August 8 and three more on August 14.

The HURRICANE, normally a party boat, made two trips as a commercial boat for albacore, but restricted the gear to the conventional rod and reel. All passengers were required to have commercial licenses and the boat guaranteed to purchase any or all of the catch.

- B. Ocean Fish Habitat Development (DJ F17R6): All three W.C.B. replication reefs were visited. A high count of 1,705 fishes was made on the Malibu concrete shelters, and the Santa Monica concrete shelters produced the low count of 645. Divers collected invertebrates and life history material. Several fish were tagged underwater.

The Redondo streetcar reef was checked for the first time in several months and 1,421 fishes were counted.

On September 21 a check was made aboard a Redondo sportfishing boat. Fishing for 42 minutes on the quarry rock component of the Hermosa W.C.B. reef, 13 passengers landed 40 sport fish and one shark. The catch consisted of 31 sand bass, 2 kelp bass (only five of the bass were below the 12-inch size limit), 1 sculpin, 1 yellowtail rockfish, 1 California halibut, 4 bonito and 1 dogfish. Fishing was far better on the reef (with the exception of bonito) than at any of the other stops made during the day. This boat started fishing this reef almost every day three weeks ago. So far the catch has not diminished. Project divers noted no diminution in the fish population on this reef on September 25.

- C. Blue Rockfish Management Study (DJ F19R2): Routine/^{catch}sampling was continued during the month and stomach analyses were conducted on 20 blue rockfish. Tagged blue rockfish were released at the Farallon Islands, Princeton, Ano Nuevo, Monterey, and Morro Bay. Five tags were returned during the month, none from fish which had moved more than 2 miles. The longest journey was made by a fish which had been released 11 months previously.

Progress was made on preparing ocean sportfishing maps of the California coast. The first map of the series; Del Norte, Humboldt and Mendocino Counties - was prepared for first editing.

A field conference on habitat improvement for Monterey Bay was attended and a recommendation not to construct an artificial reef off Soquel was made. Our alternative suggestion was to place a rocky reef area adjacent to the Cement Ship at Seacliff Beach State Park.

Two skindiving meets were attended; one at Anchor Bay on September 8, the other at Santa Cruz on September 22.

D. Gotshall presented F12R findings and present blue rockfish research goals to 35 members of the Peninsula Aqua Knights skindiving club.

- D. Southern California Marine Sport Fish Survey (DJ F20R1): Data from the pilot sampling of the skiff fishery are under analysis. Some preliminary results comparing week-end days at three fishing ports are:

Location	Total Skiffs Fished	Total Skiffs Sampled	Total Fish Sampled	Total Man Hours Fished in Sample
Alamitos Bay	420	129	1,090	2,642.5
Mission Bay	213	119	1,532	2,624.2
San Diego Bay	275	92	1,170	2,250.3

This and other information to be compiled will enable us to establish a sampling program for the skiff fishery in southern California.

At present the surf fishermen are being interviewed to determine areas of concentration and catch/effort. This is proving difficult because of the seasonal reduction in man power and the vast area to be covered.

Dingell-Johnson Progress and Completion Reports have been checked and submitted to Sacramento.

The age analysis of the barracuda sport and commercial fishery is progressing at a rapid rate. It is anticipated that this work will be completed in December.

6. SPECIAL PROJECTS

- A. Southern California: Three days, September 6, 13 and 19 were spent with the City of Los Angeles' vessel PROWLER, on the Santa Monica Bay trawling program. In all, 22 hauls were made in waters ranging in depth from 60 to 600 feet. Good catches of speckled sanddabs and yellowchin sculpins were made in 60 to 180 feet while slender sole abounded in deep waters.

Eight manuscripts for California Fish and Game, a lead article for a catch bulletin and the vertebral key Fish Bulletin received attention in varying amounts from the Marine Resources editor.

A considerable amount of time was directed toward reviewing pertinent literature for Supplement 3 to An Annotated Bibliography of Research in Economically Important Species of California Fish and Game.

- B. Northern California: On 12 September, a flight was made to Ano Nuevo in the state Cessna to photograph sea lions. Stanford Research Institute has been keeping a continuing estimate of the number of sea lions

on this rookery. They also have been experimenting on the ability of these beasts to locate food by echo ranging in complete darkness. The sea lions' ability to produce very high frequency vibrations for food hunting appears to be quite similar to that used by porpoises. A large increase in the number of sea lions during the previous ten days indicated previous counts made by the DF&G probably did not indicate the maximum number of animals using the rookery. Dr. Thomas Poulter of SRI accompanied the flight.

7. BIOLOGICAL NOTES

Ten fishermen saved an assortment of items during September. Four of the ten brought in various albacore food items, mostly juvenile rockfish, anchovies and such, but including a daggertooth (Anotopterus pharao) a medusafish (Icichthys lockingtoni) and a lanternfish (Tarletonbeania crenularis).

Two fishermen sent us king-of-the-salmon ribbonfishes (Trachipterus altivelis) that had been picked up on shore at Santa Catalina Island and Cabrillo Beach and an albacore fisherman brought in a large grenadier (Coryphaenoides acrolepis) he found floating off Ensenada.

A purse seiner caught a 40-pound louvar (Luvarus imperialis) off San Clemente Island; a gill netter saved us a 7-foot bramble shark (Echinorhinus cookei) at Hueneme; and a green jack (Caranx caballus) was picked up in a bait net in L.A. Harbor.

Only one specimen, a red brotula (Brosmophycis marginata), was sent in by a sportfisherman.

Three fossil Pacific herring otoliths and two fossil anchovy otoliths were identified at the laboratory. They were found in a lower Pleistocene (about 2 million years old) collection made at Timms Point, San Pedro. An annulus was visible on one of the fossil herring otoliths, and the annuli on one of the anchovy otoliths were clear enough to allow us to conclude that the anchovy was over four years old when he died.

A flounder, reported to have been caught off San Francisco, and tentatively identified as Reinhardtius sp., was obtained from a Fort Bragg market.

8. BIOSTATISTICS

A. Data Processing

Regular Reports:

July boat check listings and marine sport catch reports were processed.

August 1962 processor and cannery reports were processed. Monthly tuna and sardine letters were prepared and mailed.

The 1960 striped bass annual report together with the following 1961 species annual reports were compiled and transmitted:

1. abalone
2. albacore
3. anchovy
4. barracuda
5. crab, market
6. lingcod
7. sablefish
8. salmon
9. seabass, white
10. striped bass

The June 1962 Pacific Mackerel Report III was completed and transmitted to Pelagic Fish Investigation.

Special Reports:

An alphabetical list of employees was prepared for the Training Officer.

Marine sport catch and commercial landing figures for Bodega, Humboldt, and Bolinas Bays were prepared for D.W. Slater of the FWS River Basin Studies.

A list of party boats operating from Avila to Crescent City was provided for Ellis Berry, San Francisco Wildlife Protection.

Machine processing of Postcard Angler Survey mailing list was completed.

Key punching and machine processing of 1961 albacore logs was completed for Tuna Investigation. This deck is to be used for computer editing and analysis of albacore log data.

Commercial landing and party boat data were sent to the publishers of California Information and Almanac.

A cost and speed analysis was made on the use of the tabulating and Addressograph machines for processing new and existant mailing lists.

Marine sport catch historical bulletin tables for the years 1936 to 1940 and 1947 to 1961 were completed.

Subprograms to determine albacore catch and catch effort by days absence and by length have been written and tested.

Work in Progress:

Work is proceeding on the Historical albacore and bluefin catch figures.

Editing of August and September market receipts and September cannery receipts is in progress.

The September marine sport catch logs are being edited. August marine sport catch reports are being processed in the machine unit.

Subprograms to determine albacore catch and catch effort by temperature and area are being debugged.

Field:

Bait fish market receipts were clarified with Santa Monica, Redondo Beach, Long Beach and Seal Beach bait dealers. Assistance was given by Wardens Raymond Koenig and Peter Hickman.

Weight conversions were calculated for sand crabs, ghost shrimp, mud-suckers, and mussels.

At the end of the month various dealers were being contacted in the San Francisco Bay and Sacramento areas. Licenses and a fish receipt book were issued to a brine shrimp dealer.

B. Technical Assistance and Biometrical Analysis

Statistical and Mathematical Analysis:

A paper on the postal card angling effort survey was partially completed. Seventeen hundred copies of a letter report giving a brief summary of the results of the survey were mailed to respondents who requested it.

Manual Computation:

An estimate of total fishing effort, total catch of all species, and total catch of California halibut for southern California piers between June 15 and September 15, 1962 was in the process of computation. This estimate will be based on data collected by F20R during pilot sampling. The figures will be rather rough because during the pilot study sampling units were not randomly selected.

The sablefish boat catch analysis for 1961 was partially compiled.

A table of albacore catch figures was compared with tabulated reports for the Tuna Investigation.

9. RESEARCH VESSELS

N.B. SCOFIELD and MOLLUSK

The two vessels conducted a two week abalone survey of Channel Islands.

ALASKA

From the 1st through the 6th the ALASKA was engaged in testing the Pelagic Fish southern California midwater trawl as a tool for quantitatively sampling pelagic fish.

On the 18th the vessel sailed for Baja California to begin the 1962 Pelagic Fish Survey in Mexican waters. This cruise will continue past the end of the month.

NAUTILUS

The vessel completed two 5-day salmon cruises in Carquinez Straits and one 5-day crab cruise off Bodega and Drakes Bays.

10. MISCELLANEOUS

A. Meetings, Talks and Visitors:

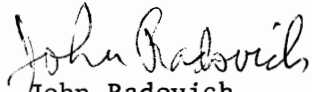
- Sept. 6 - Carlisle discussed the possibilities of converting the Atkinson work pier to a fishing pier with Mr. Rofelty of the Guy F. Atkinson Company when the latter visited the Laboratory. Santa Barbara County would probably have to assume ownership.
- Sept. 7, 11 - W. Dahlstrom attended meetings at State Public Health, Berkeley, in regard to shellfish toxicity problems.
- Sept. 10-12 - Carlisle attended the annual meeting of the American Fisheries Society at Jackson Lake, Wyoming and gave a talk on the Effects of Artificial Habitat on the Marine Environment.
- Sept. 11 - Roedel spent the day at the Menlo Park Laboratory.
- Sept. 13-14 - Roedel attended a meeting in Santa Barbara of the Natural Resources Committee of the State Chamber of Commerce. Standard Oil gave the opening luncheon at which they explained in detail their offshore operations. They gave a great deal of credit to the Department for its survey of the effect of the islands on marine life and distributed copies of our report to the Western Oil and Gas Association (which, of course, reached conclusions favorable to the industry). During the afternoon, Standard took us on a boat ride to circle the two local "islands". The evening was devoted to a conference on "Conservation Conflicts" moderated by DeWitt Nelson. On the following morning a variety of topics were considered, including a review of State-Federal relationships regarding offshore leases.
- Sept. 14 - R.S. Collier, Shark Research Committee, Van Nuys, met with Baxter at the Laboratory.
- Sept. 15-16 - Turner, as Diving Officer, and Hugh Thomas, (Safety Board member) conducted an inspection of Region I diving personnel.
- Sept. 19 - Roedel and Orcutt met with Jones and Kelly in Sacramento to discuss needs for information on San Francisco Bay by MRO and the Delta Project. It appears that our interests are such as to warrant considering a joint study. Orcutt and Kelly are drafting a proposal.
- Sept. 19 - Radovich, Young and Carlisle attended the Ocean Fish Protective Association Delegates Meeting held in Compton. Young discussed the current status of the

California halibut commercial and sport fisheries and Carlisle answered questions on artificial reefs. Approximately 50 delegates and guests were present.

- Sept. 19 - Gates represented the Department of Fish and Game at a CalCOFI Boat Conference held at La Jolla.
- Sept. 20 - Roedel attended the regular staff meeting in Sacramento.
- Sept. 24 - Dahlstrom and Poole met with Greenhood and Mackett at Terminal Island to discuss the rearrangement of the crab annual reports so that effort could be obtained statewide and also by port areas.
- Sept. 25 - Carlisle discussed W.C.B. financed artificial reefs with San Diego County officials in preparation for a W.C.B. meeting which was scheduled for October, but has now been postponed.
- Sept. 25 - Abramson and Mackett met with Dale Jagger of IBM to discuss programming of special 10-day salmon reports.
- Sept. 25 - Mr. E. McCracken of Shell Oil Company met with Orcutt and Best to discuss proposed seismic operations of Shell Oil Company off California during November-December 1962.
- Sept. 25 - Mr. R. MacKenzie of Shell Chemical visited the Laboratory to discuss the work done by the Washington State Shellfish Lab on the control of ghost shrimp and the need for similar studies in California.
- Sept. 27 - Edwin Yamada of Concept Engineering of Orange met with Roedel, Baxter and Turner at the Laboratory. Mr. Yamada brought an imbedment anchor and explained its use and attendant problems.
- Sept. 27 - Radovich presented a talk on Sardine Biology and the activities of the Marine Research Committee at the Alamitos Bay Sportsmen's Club in Long Beach.
- Sept. 27 - Richard F. Ford and P. Taylor, graduate students at Scripps Institution of Oceanography met with several staff members at Terminal Island. Mr. Ford is interested in speckled sanddabs and Mr. Taylor, scorpionfish. They discussed the underwater tagging gun with Turner and Ebert.
- Sept. 28 - Dorothy Bailey and Dave Mackett attended the Univac 1004 System Seminar in Los Angeles.

B. Personnel:

- Sept. 7 - Max Grbelja, Motor Vessel Engineman, resigned.
- Sept. 12 - Barbara N. Higgins, Junior Stenographer, appointed,
Menlo Park.
- Sept. 14 - John M. Wolcott, Aquatic Biologist I, Seismic, resigned.


John Radovich
Acting Manager

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